

ATOMIC ENERGY *newsletter*[®]

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
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Dear Sir:

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The 75,000 shares of common stock offered by Technical Operations, Inc., Burlington, Mass., have been oversubscribed and the books closed on the offering. Market price of \$13.75 a share brought the company some \$1,031,250 less underwriting commissions and other expenses of the offering. Distribution was made through an underwriting group headed by Bear, Stearns & Co., New York. (Principal business of Technical Operations is research and development in nuclear and other fields, although it also manufactures radiographic isotope equipment and other devices.) (Other FINANCIAL NEWS, p.5 this LETTER.)

Two Signal Corps contracts totaling \$553,000 to build radiation detection instruments have been received by Jordan Electronics division of Victoreen Instrument Co., Alhambra, Calif. The company expects to start production against the orders within a month. (Other CONTRACT NEWS, p.5 this LETTER.)

Prescribed materials (mostly uranium oxide) exported by South Africa under the Atomic Energy Act amounted to £12,500,000 for the first quarter of 1959 compared with £14,400,000 for the like period in 1958. Average production cost in 1959 for all producers was 42s. per lb., while price obtained was 86s. 10d. per lb. (Other RAW MATERIALS NEWS, p.2 this LETTER.)

Two courses in the industrial radioisotopes training program of Oak Ridge Institute of Nuclear Studies have been scheduled for this August. The first, of two-weeks duration, covers Advanced Industrial Research Techniques, and will start Aug. 17. The second, also of two-weeks duration, is on Advanced Industrial Techniques and starts Aug. 31. Prerequisite for application for these courses is a working knowledge of the basic techniques of using radioisotopes. Further information may be obtained from the Institute at P.O. Box 117, Oak Ridge, Tenn. (Other MEETINGS, COURSES, CONFERENCES, p.4 this LETTER.)

Fifteen tons of heavy water have been leased by the USAEC to the Government of India for the research reactor at Trombay. It was the first transaction in which heavy water has been leased by the Commission to a foreign government. Previously, all heavy water had been sold by the USAEC. (Other PRODUCT NEWS, p.3 this LETTER.)

W. J. Fraser & Co., Ltd., Romford, England, are to act as consulting engineers on the treatment and disposal of radioactive effluents from Eurochemie's new processing plants and laboratories at Mol, Belgium....France will soon detonate an atomic bomb according to Pierre Guillaumat, Minister of Defense. It will probably be in the Sahara, which French officials have previously stated is their area of choice. (Other NEWS OUTSIDE THE U.S., p.3 this LETTER.)

The U. S. Navy's first nuclear powered surface ship, the heavy cruiser Long Beach, was christened and launched last week at the Quincy, Mass., yard of the Bethlehem Steel Company. She is the first of three nuclear-powered surface vessels being built for the Navy. (Other BUSINESS NEWS, p.2 this LETTER.)

ATOMIC ENERGY BUSINESS NEWS...

NEW FIRM TO PRODUCE NUCLEAR METALS:- New firm, Consolidated Beryllium, Ltd., has been set up by The Beryllium Corp., Reading, Pa., and Imperial Smelting Corp., Ltd., London, England. Imperial Smelting will manage the new firm which will produce nuclear-grade beryllium metal and beryllium-copper master alloy as raw material for sale to fabricators in England and in Europe. Production facilities at Avonmouth, England (which recently were announced as Imperial Smelting's beryllium operation), will be operated by Consolidated Beryllium when completed later this year. Imperial Smelting, wholly-owned subsidiary of Consolidated Zinc Corp., Ltd., has been doing work for the past six years for the U.K. Atomic Energy Authority on beryllium. The Beryllium Corp. has plants at Reading and Hazelton, Pa., and holds contracts to furnish the metal to the USAEC.

FEED MATERIALS FACILITY TO BE SOLD:- The uranium feed materials processing facilities at Destrehan St., St. Louis, Mo., are now to be disposed of by the USAEC. Operated by Mallinckrodt Chemical Works from World War II until 1958, they have been on standby basis since the startup last year of the new Weldon Spring, Mo., feed materials production center also operated by Mallinckrodt for the USAEC. Some \$250,000 annually is being spent by the Commission to maintain the equipment and buildings at Destrehan St.; the land there is owned by Mallinckrodt and leased to the USAEC.

SEVERAL BUILDINGS COMPLETED AT NUCLEAR RESEARCH CENTER:- At research center of Union Carbide Nuclear Co., in Sterling Forest, main research laboratory, power and utilities building and ores and minerals development laboratory have now been completed. Work on the remaining two buildings, the nuclear reactor building and adjoining laboratory at this facility near Tuxedo, N.Y., will start later this Summer. Research and development work at these facilities will be concerned with geology, mineralogy and ore processing in conjunction with the mining and milling activities of Union Carbide Nuclear Co., and the operations of Union Carbide Ore Co.

NUCLEAR LOGGING CALIBRATION FACILITY IN OPERATION:- The nuclear logging calibration facility set up at the University of Houston by the American Petroleum Institute is now in operation. Gamma ray and neutron pits of this facility provide a standard environment for nuclear logging instruments which can be calibrated in standard API units by being lowered into the pits. Cost will be defrayed by fees paid by the nuclear logging companies which will use the facility; operation will be supervised by the university.

RAW MATERIALS...prospecting, mining, marketing...

UNITED STATES:- Uranium ore from the Gas Hills, Wyoming, properties of Vitro Minerals Corp., will be bought by Susquehanna-Western, Inc., for processing at its new Riverton, Wyoming mill under recent agreement made by the two firms. The contract calls for the delivery of ore containing some 480,000-lbs. of uranium concentrate per year, and provides for shipments to the end of 1966. Total purchases under this contract may exceed \$15 million, and will mean a milling rate for Vitro of more than 100,000 tons of ore per year at the estimated grade of its Wyoming deposits.

Uranium production in June by Western Gold & Uranium, Inc., at its Orphan mine near Grand Canyon, Ariz., totaled 2,138 tons averaging 1.05% uranium oxide, Ralph G. Brown, company chairman, has reported. Earnings for June after all charges were \$144,670, or 9¢ per share, an all-time high for the company. This brought the net for the five months ended June 30, 1959 to \$245,648 against \$190,558 for the like 1958 period. The company expects to complete by Oct. 1, 1959 its major development program to increase production at the Orphan mine.

CANADA:- Ore treatment rate of 5,600-5,800 tons per day at plant of Consolidated Denison Mines, near Elliot Lake, N. Ontario, while somewhat below capacity, is still producing uranium precipitates in excess of its prescribed delivery rate, company officials point out. Costs of \$9.33 per ton for the first quarter this year may be reduced to just over \$9.00 per ton, for the second quarter, the company notes. (The company is believed to have earned \$7,750,000, equal to about \$1.75 a share, the first 6-months this year, and for all of 1959 is expected to increase its net to about \$15 million or between \$3.25 and \$3.50 a share. This compares with \$9,556,113 or \$2.15 a share earned in 1958.)

NEW PRODUCTS, PROCESSES, INSTRUMENTS...for lab & plant...

NEW PRODUCTS FROM MANUFACTURERS:- Model 34-8 transistorized 200 channel analyzer uses ferrite core memory system for rapid spectrum analysis. Linearity is said to be better than 0.5%, with average dead time of 60 microseconds. Unit may be operated as a multi-channel scaler. --Radiation Instrument Development Laboratory, Inc., 5737 So. Halsted St., Chicago 21, Ill.

Radioactive clathrates, a new source of radiation combining safety with high specific activity, are now available from stock from this processor. The clathrate, a crystalline form of hydro-quinone combined with gaseous krypton-85, has a specific activity of 3 curies per gram, plus-or-minus 20%....Four carbon-14 compounds are also newly available from this company: adenine-8-C-14-sulfate; guanine-8-C-14 sulfate; l-methionine-methyl-C-14; and l-ethionine-ethyl-C-14. --Tracerlab, Inc., Waltham 54, Mass.

New transportable nuclear air sampler is designed for collecting contaminated particles from the air. Using a special constant-duty vacuum pump, with sampling flow controlled by a built-in limiting orifice, the unit continuously samples radioactive air at the rate of 2 cubic feet per minute. The amount of air sampled is recorded by a dry gas meter, which shows elapsed operating time in hours and tenths.Gelman-Gill Rapid Response Bivane measures both vertical and horizontal wind components and is said to have maximum overshoot of 15% compared with 200% of standard wind vanes. The accuracy should be of use in studies of fallout from atomic energy installations where correct information on wind patterns is essential. -- Gelman Instrument Co., Chelsea, Michigan.

Radiation resistant servomotor, Type T175-001 size 15, is said to operate effectively from minus 54 deg. C., to plus 200 deg. C., and to withstand intense ionizing radiation. The 115 volt (fixed phase), 400 cps unit has power input of 6.1 watt, no load speed of 5000 rpm, and stall torque of 1.45 oz-in. Weight is 7.3 oz. --Kearfott Co., Inc., Clifton, N. J.

Hydraulic micro-pipetter, designed for use as a microburet and for precisely aliquoting radioactive solutions, measures samples as small as one lambda (0.001-ml.) and has maximum capacity of 1-ml. In operation, the pipetter is said to be accurate to within 2% for a one lambda sample, and to 0.25% for 100 lambda samples. Construction is of Kel-F, with aluminum or stainless steel used for metal parts. --Nuclear-Ohio, Inc., Bay Village, Ohio.

PRODUCT NEWS:- Lead-cemented alloys made by mixing molten lead with finely divided solid particles of other metals or materials, developed at Battelle Memorial Institute, Columbus, Ohio, may have applications in the nuclear field, the Institute notes. With boron added, the resulting lead-cemented alloy would be an effective shielding material, it is suggested. In the work, done under sponsorship of the Lead Industries Association, special mixing techniques were required since most metals resist being stirred into molten lead. Six metals were found particularly well suited for the new alloys: cobalt, copper, iron, molybdenum, nickel and tungsten. Experiments showed that the size and shape of the metal powder particles, as well as the amount, affect the final material.

NEWS OUTSIDE THE UNITED STATES...

GREAT BRITAIN:- Invitations to bid on construction of the Dungeness nuclear power station have recently been sent out by the Central Electricity Generating Board; this will be an improved Calder Hall type plant, similar to the Hinkley Point, Somerset, station. Bidders must be prepared to handle the complete nuclear power station job. Later this year, bids will be invited for the Sizewell, Suffolk, station which will have a 600 megawatt capacity; it is believed this station will be of a similar type.

JAPAN:- Letter of intent, to be formalized in a firm contract, has been handed Eldorado Mining & Refining, Ltd., by the Japan Atomic Fuel Co., under which the Japanese firm will import some six tons of uranium concentrates from Canada. It will be under terms of the Canadian-Japanese bilateral agreement recently signed by the two countries. The concentrates will be refined in Japan into metal for the natural uranium, heavy water research reactor under construction at Tokai-Mura, near Tokyo. (This negotiation is separate from the three tons of uranium metal Japan purchased from the International Atomic Energy Agency; Canada had given the material free to the Agency, requiring it to be sold at world prices.)

ATOMIC ENERGY PATENT & TRADE-MARK DIGEST...

PATENTS ISSUED July 7, 1959 to PRIVATE ORGANIZATIONS:- (1) Lithium values recovery process. J. A. Peterson, G. H. Gloss, inventors. No. 2,893,828 assigned to International Minerals & Chemical Corp., New York. (2) Ion source. M. E. Reinecke, inventor. No. 2,894,156 assigned to Phillips Petroleum Co.

PATENTS ISSUED July 7, 1959 to GOVERNMENTAL ORGANIZATIONS:- (1) Loading machine for reactors. S. L. Simon, inventor. No. 2,893,575 assigned to USAEC. (2) Separation of uranium from other metals. H. H. Hyman, inventor. No. 2,893,822 assigned to USAEC. (3) Separation of uranium from thorium. N. H. Hellman, inventor. No. 2,893,823 assigned to USAEC. (4) Uranium recovery process. H. H. Hyman, J. L. Dreher, inventors. No. 2,893,824 assigned to USAEC. (5) Separation of protactinium from contaminants. J. G. Malm, S. Fried, inventors. No. 2,893,825 assigned to USAEC. (6) Platinum hexafluoride and method of fluorinating plutonium containing mixtures of it. J. G. Malm, B. Weinstock, H. H. Claaren, inventors. No. 2,893,826 assigned to USAEC. (7) Separation of americium from promethium. R. E. Pressly, inventor. No. 2,893,827 assigned to USAEC. (8) Preparation of plutonium. M. Kolodney, inventor. No. 2,893,928 assigned to USAEC. (9) Process for removing aluminum coatings. J. Flox, inventor. No. 2,893,863 assigned to USAEC. (10) Process for continuously separating irradiation products of thorium. L. P. Hatch, F. T. Miles, T. V. Sheehan, R. W. Wiswall, R. J. Heus, inventors. No. 2,893,936 assigned to USAEC. (11) Charge bottle for a mass separator. P. H. Davidson, inventor. No. 2,894,135 assigned to USAEC. (12) Calutron receiver. H. F. York, inventor. No. 2,894,137 assigned to USAEC. (13) Slit adjustment clamp. K. R. McKenzie, inventor. No. 2,894,138 assigned to USAEC.

PATENTS ISSUED July 14, 1959 to GOVERNMENTAL ORGANIZATIONS:- (1) Coating uranium from carbonyls. D. H. Gurinsky, S. Steingiser, inventors. No. 2,894,320 assigned to USAEC. (2) Electronic analog computer for determining radioactive disintegration. H. P. Robinson, inventor. No. 2,894,688 assigned to USAEC. (3) Positioning device. W. H. McCorkle, inventor. No. 2,894,647 assigned to USAEC. (4) Process of extracting uranium and radium from ores. C. W. Sawyer, inventor. No. 2,894,804 assigned to USAEC. (5) Separation process for actinide elements and compounds of them. L. B. Werner, I. Perlman, M. Calvin, inventors. No. 2,894,805 assigned to USAEC. (6) Recovery of protactinium from aqueous solutions. R. E. Elson, inventor. No. 2,894,806 assigned to USAEC. (7) Cation exchange method for the recovery of protactinium. J. C. Sullivan, M. H. Studier, inventors. No. 2,894,807 assigned to USAEC. (8) Method for recovering uranium from oils. L. H. Gooch, inventor. No. 2,894,808 assigned to USAEC. (9) Method of recovering mineral values. R. F. McCullough, J. B. Adams, inventors. No. 2,894,809 assigned to USAEC. (10) Columbic oxide adsorption process for separating uranium and plutonium ions. R. H. Beaton, inventor. No. 2,894,810 assigned to USAEC. (11) Process for making uranium hexafluoride. R. Rosen, inventor. No. 2,894,811 assigned to USAEC. (12) Process for recovering plutonium from foreign products. R. B. Duffield, inventor. No. 2,894,812 assigned to USAEC.

TRADE-MARK NEWS:- Trade mark (SN 51,245) Raoleic Acid, with acid disclaimed, is to be issued Abbott Laboratories, Inc., N. Chicago, Ill., for radioactive fatty acid for diagnostic use in the human body....Trade mark (SN 53,044) Rubratope is to be issued Olin Mathieson Chemical Corp., New York, for pharmaceutical preparations containing radioactive cobalamin.

MEETINGS, COURSES, CONFERENCES...

CONFERENCES:- Third Industrial Nuclear Technology Conference is scheduled for Sept. 22-24, 1959, in Chicago. It will cover non-power aspects of nuclear research. Information may be obtained from L. Reiffel, Armour Research Foundation, 10 W. 35th St., Chicago 16, Ill.

SYMPOSIA:- Two day symposium on Industrial Uses of Radioisotopes will be held Aug. 20-21, 1959 in Buffalo, N.Y., under sponsorship of USAEC, Buffalo Chamber of Commerce, University of Buffalo, and Canisius College. The symposium should be of interest to management and technical people, as well as to educators. Information may be obtained from C. F. Light, Buffalo Chamber of Commerce, 238 Main St., Buffalo 2, N. Y.

ATOMIC ENERGY CONTRACT NEWS...

CONTRACTS AWARDED:- New contract has been given General Electric Co., by the USAEC covering GE's operation through 1964 of the Hanford, Wash., plutonium production reactors, and the other facilities and laboratories there. The new contract was entered into despite an existing contract due to run until 1961. The USAEC said this was to assure continuity of management during the construction and startup of the new plutonium production reactor (with power take-off engineering features) being built at Hanford.

Two contracts for recovery of uranium from scrap material have been awarded on a low bid basis by the USAEC's New York operations office. Under a \$77,100 contract, Nuclear Materials & Equipment Corp., Apollo, Pa., will recover for the USAEC approximately 52,500 grams of uranium from saw and milling chips, solutions, clad plates, etc. Working under a \$6,047 contract, Englehard Industries, Inc., Newark, N.J., will recover about 7,500 grams of uranium from a uranium-aluminum alloy.

Contract has been awarded Tracerlab, Inc., Waltham, Mass., by U. S. Army's engineer and development laboratories, Fort Belvoir, Va., for research in land mine detection. The investigations will be to determine the practicality of an x-ray Rayleigh scattering sensing device as a mine detector. Special emphasis will be placed on the design and construction of suitable instrumentation employing the x-ray system. (The company feels there is a possibility the Rayleigh scattering technique could be used for inspecting wells or other metal joints and for detecting the presence of very small quantities of contaminant material in process streams.)

International General Electric Co., New York, under contract received from the Philippine National Science Development Board, will build a nuclear research reactor to be located in a nuclear center within the campus of the University of the Philippines, Quezon City. The U. S. will provide \$500,000 for the Philippine Government's purchase of the reactor. Supporting facilities, laboratories, etc., including operation of the reactor, will be financed by the Philippine Government.

Contract to construct shipside nuclear servicing barge has been awarded Todd Shipyards, Houston, Tex., by Maritime Administration and USAEC. Award was made on Todd's low bid (among 10 received) of \$569,165. The non-propelled nuclear servicing vessel is to be used in nuclear ship maintenance, refueling and waste handling operations. It will have an over-all length of 129-ft., beam of 36-ft., and design displacement of 650-tons. To provide maximum stability and buoyancy, the barge will have a highly compartmented hull. A hold, approximately midship, will be for possible future storage of expended fuel elements. Installed facilities will be able to process radioactive liquid and solid wastes and prepare them for disposal. Design of the barge was done by Electric Boat division of General Dynamics Corp., under USAEC contract.

ATOMIC ENERGY FINANCIAL NEWS...

NUCLEAR POWER COMPANY RAISES \$5 MILLION FROM SALE OF BONDS & NOTES:- Some \$2.5 million of 5% first mortgage bonds of Yankee Atomic Electric Co., Boston, have been purchased by a group of life insurance companies. This is the first part of \$20 million of such bonds to be issued by Yankee Atomic during the course of construction of its nuclear power plant at Rowe, Mass. The company has also obtained \$2.5 million on its note with First National Bank of Boston, with other banks participating; this note is the first part of \$17 million which the banking group has agreed to lend. (Other financing for Yankee Atomic is from the 11 electric utilities which make up the firm; some \$20 million in common stock was issued in that financing.)

POSTPONEMENT OF SINKING FUND PAYMENTS TO BE ASKED BY URANIUM PRODUCER:- Northspan Uranium Mines, Ltd., a Rio Tinto Group company mining and milling uranium ore in the Blind River area of Canada, will ask holders of its 5 3/4% general mortgage bonds to vote Sept. 1, 1959 on proposals to postpone and revise sinking fund payments on the bonds. The proposals would postpone sinking fund payments required to be made by the company on Jan. 1 and July 1, 1960 and Jan. 1, 1961 and would increase the last four sinking fund payments and the payment on the final maturity date of the bonds July 1, 1963.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

July 21, 1959